individuals of wild species not only are balanced internally, but are in harmony with their natural environment.

A classification of hybrid auto- and amphiploids is presented based upon circumstances of origin which determine certain observable results involving such features as the loss or preservation of parental genomes, and the complete, partial, or absence of inter-genomal pairing. Plotted against these differentiae is the degree of sterility or fertility of the undoubled F_1. The fully fertile F_1 is regarded as resulting from an intra-ecospecific cross and is known only in autoploids. Where partial sterility results the cross is regarded as inter-ecospecific, and where complete sterility results, the cross is regarded as inter-cenospecific. These latter cases apply to amphiploids.

Although the reticulate nature of evolutionary relationship in the lower taxonomic categories is granted, your reviewer prefers to keep an open mind on the significance of interfertility and sterility, used in a categorical sense, to delimit or merge taxonomic entities. There is much to be learned about the nature and causes of sterility and fertility. This leads him to question the merging of the hexaploid *Madia citrogracilis* and the hexaploid *M. gracilis* on the circumstantial evidence of gene interchange in spite of the difference in origin of the two. Likewise, he maintains an open mind on the meaning of the apparent discrepancies in the classification of the grasses discussed by these authors until we can be sure that speciation in the monocotyledons follows precisely the same cytogenetic patterns as it does in dicotyledons.

The work goes a long ways toward clarifying the problems of amphiploidy and autoploidy and it is of the usual excellence of these authors.—Herbert L. Mason.

Flora of Illinois. By George Neville Jones. The University Press, Notre Dame, Indiana. Pp. 317, 1 map. 1945. $4.00.

To an already impressive list of excellent guides to the flora of limited regions of North America, Dr. Jones now adds the "Flora of Illinois," a volume deserving the whole-hearted commendation of amateur and professional botanists. The work consists of carefully constructed keys to the families, genera, and species of plants in the state of Illinois. There are no descriptions, no illustrations, and indications of range beyond state boundaries are omitted. There is no list of proposed new species, new names, or new combinations, but one finds on page 178 a new combination in *Rhus*. There is a short discussion of the flora and vegetation by regions at the beginning, and a lengthy bibliography at the end. The section of the latter dealing with taxonomic monographs and revisions, although incomplete, is perhaps the most useful bibliography of this kind which has appeared in connection with any North American flora.

The key to the families (adapted from an earlier attempt by

Hitchcock and Standley) presents an interesting departure from the usual order for such keys in that it emphasizes vegetative before floral characteristics. Such a key doubtless is useful in identifying sterile specimens, particularly of trees and shrubs, but in most cases one needs flowers to reach the family anyway. Since professional taxonomists rarely use keys to families, it must remain to amateurs and beginners to determine its usefulness. One wonders, though, how one would key such a species as *Cornus canadensis* which the author admits is an "herb or subshrub," but which must be considered a tree or a shrub before it can be placed in the proper family.

The sequence of families and their delimitation follow in general the system outlined in the eleventh edition of Engler's "Syllabus der Pflanzenfamilien," a sound procedure in a work such as the "Flora of Illinois." However, segregation of the Saxifragaceae into five families, while the Liliaceae, Rosaceae, Leguminosae, Ericaceae, and Compositae are retained intact, is hard to defend. Generic limits are essentially traditional and conservative; specific limits, less so. The author leans heavily on recent revisions and monographs but does not always follow them in their entirety, particularly when deciding the status of a given entity. Therefore, the flora cannot be trusted always to reflect the most carefully considered current opinion. Departures from accepted standard monographs and revisions in a flora of this kind should be few or accompanied by reasons.

One is tempted to compare Jones's flora with Deam's masterly "Flora of Indiana," a comparison which is not entirely fair to the younger author. The number of species admitted to the two floras is comparable, 2124 for Illinois; 2140 for Indiana. The plants of Illinois are doubtless not so well known as are those of the neighboring state, but Jones's addiction to giving specific status to entities considered as varieties by Deam (and not included in the above total), and his less rigorous criteria for the inclusion of species, tend to obscure this probability. Lengthy notes and field observations which add so much to Deam's flora are omitted entirely. Aside from those which are recognized as species, most varieties and forms (of which Deam lists 390) are ignored by Jones. Some of these omissions are justifiable in the interest of brevity, but the value of the contribution to critical botanists unquestionably has suffered thereby.

Dr. Jones, however, is to be congratulated on this successful culmination of his five-year field and herbarium study. The publication of a flora covering an area as large as the state of Illinois is always an event of major botanical importance, particularly when there has been no previous comprehensive flora of the area. This flora satisfies a real need of the individual who is interested in the flora of the state. Here he may turn and with a minimum effort determine the plants which he finds.—Marion Ownbey, State College of Washington.